EMC TEST REPORT For VCCI

Test Report No.	:	KES-E1-16T0513
Date of Issue	:	Oct, 13, 2016
Product name	:	NETWORK CAMERA
7		
Model/Type No.	:	PNP-9200RHN
Variant Model	:	-
Applicant	:	Hanwha Techwin Co., Ltd.
Applicant Address	:	1204, Changwon-daero, Seongsan-gu, Changwon-si, Gyeongsangna-do, Korea
Manufacturer	:	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.
Manufacturer Address	:	No.11 Weiliu Rd,Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China
Date of Receipt	:	Sep, 23, 2016
Test date	:	Oct, 05, 2016 ~ Oct, 06, 2016
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dae Hyun, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Oct. 13, 2016	KES-E1-16T0513	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Items		Description
Video	Imaging Device	1/2.5" 8M CMOS
	Total Pixels	3864(H) x 2202(V), 8.51M pixels
	Effective Pixels	3840(H) x 2160(V), 8.00M pixels
	Scanning System	Progressive Scan
	Min. Illumination	Color : 0.3 Lux/F1.6 (1/30sec, F1.8, 50IRE), 0.005 Lux (2sec, F1.8, 50IRE) Color : 0.1 Lux/F1.6 (1/30sec, F1.8, 30IRE), 0.0005 Lux (2sec, F1.8, 30IRE) B/W : 0 Lux (IR LED On)
	S / N Ratio	50dB
	Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation
Lens	Focal Length (Zoom Ratio)	4.8mm ~ 96mm (20x)
	Max. Aperture Ratio	F1.8(Wide) / F3.6(Tele)
	Angular Field of View	H : 65.1°(Wide) ~ 3.8°(Tele) / V : 38.4°(Wide) ~ 2.2°(Tele)
	Min. Object Distance	1.5 m (3.28ft)
	Focus Control	AF / One-Shot AF / Manual
	Lens Type	DC Auto Iris / IR Corrected Lens
	Mount Type	Board-in type
Pan / Tilt / Rotate	Pan Range	360° Endless
	Pan Speed	Preset : 400°/sec, Manual : 0.024°/sec ~250°/sec
	Tilt Range	190° (-5° ~185°)
	Tilt Speed	Preset : 300°/sec, Manual : 0.024°/sec ~250°/sec
	Sequence	Preset (300ea), Swing, Group (6ea), Trace, Tour, Auto Run, Schedule
	Preset Accuracy	±0.2°
	Azimuth	Yes (E/W/S/N/NE/NW/SE/SW OSD)
	Auto Tracking	Off / On

Items		Description
Operational	IR LED	2ea
	Viewable Length	200m
	Camera Title	Off / On (Displayed up to 15 characters per line) - W/W : English/Numeric/Special Characters - Common : Multi-line (Max 6), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
	Day & Night	Auto (ICR) / Color / B/W
	Backlight Compensation	Off / BLC / WDR
	Wide Dynamic Range	120dB
	Contrast Enhancement	SSDR (Samsung Super Dynamic Range) (Off / On)
	Digital Noise Reduction	SSNRIII (2D+3D Noise Filter) (Off / On)
	Digital Image Stabilization	Off / On
	Defog	Auto / Manual / Off
	Motion Detection	Off / On (4ea, Rectangular zones)
	Privacy Masking	Off / On (16ea, Rectangular zones) - Color : Grey/Green/Red/Blue/Black/White - Zoom ratio option for mask mode - Mosaic option mode
	Gain Control	Off / Low / Medium / High / Manual
	White Balance	ATW / AWC / Manual / Indoor / Outdoor / Mercury / Sodium
	Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
	Digital Zoom	16x, area zoom funtion support digital zoom 2x

Items		Description
Operational	Rotate Image	Flip : On/Off Mirror : On/Off
	Intelligent Video Analytics	Tampering, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection
	Alarm I/O	Input 4ea / Output 2ea (Relay type)
	Remote Control Interface	RS-485/422
	Audio In	Selectable (Mic IN/Line IN), Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
	Audio out	Line out (3.5mm stereo mini jack), Max output Level : 1Vrms
	RS-485 Protocol	Samsung-T/E, Pelco-D/P, Panasonic, Honeywell, AD, Vicon, GE, BOSCH
	Alarm Triggers	Alarm Input, Motion Detection, Intelligent Video Analytics, Network Disconnect
	Alarm events	• File upload via FTP, E-Mail • Notification via E-Mail • Local storage(SD/SDHC/SDXC) or NAS recording at Network disconnected & Event (Alarm Triggers) • External output • PTZ preset
Network	Ethernet	RJ-45 (10/100BASE-T) SFP (*only using SBP-302HF)
	Video Compression Format	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High, Motion JPEG
	Resolution	3840x2160 / 2592x1944 / 2592x1464 / 1920x1080 / 1280x1024 / 1280x960 / 1280x720 / 1024x768 / 800x600 / 800x450 / 720x576 / 640x480 / 640x360 / 320x240 / 320x180
	Max. Framerate	H.265/H.264 : Max. 30fps at all resolutions Motion JPEG : Max. 15fps at all resolutions

Items		Description
Network	Smart Codec	Manual Mode (area-based : 5EA) Face detection Mode
	Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Target Bitrate Level Control
	Bitrate Control Method	H.264/H.265 : CBR or VBR, with WiseStream MJPEG : VBR
	Streaming Capability	Multiple Streaming (Up to 10 Profiles)
	Audio Compression Format	G.711 μ-law /G.726 Selectable G.726 (ADPCM) 8KHz, G.711 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC : 48Kbps at 16KHz
	Audio Communication	Bi-dierctional
	IP	IPv4, IPv6
	Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour
	Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1x Authentication (EAP-TLS, EAP-LEAP)
	Streaming Method	Unicast / Multicast
	Max. User Access	20 users at Unicast Mode
	Edge Storage	SD/SDHC/SDXC(up to 128G) - motion images recorded in the SD/SDHC/SDXC memory card can be downloaded. NAS(Network Attached Storage) Local PC for Instant Recording

1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage ☐ 100 Vac ☐ 110 Vac ☐ 120 Vac ☒ 24 Vac ☐ PoE

Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	PNP-9200RHN	-	Tianjin Samsung Techwin Opto-Electronic Co.,Ltd	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
NOTEBOOK	LG15N54	410NZET022292	LG Electronics Co., Ltd.	-
NOTEBOOK Adapter	ADP-90WH B	84ZW19F1557	DELTA ELECTRONICS(JIANGSU) LTD.	-
Speaker	BR10000A CUVE	SN128458795701	BEIJING EDIFIER HI-TECH GROUP.	-
Mobile Phone	A1688	-	Apple	-
Alarm Jig	-	-	-	-

1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45(LAN)	Notebook	RJ-45(LAN)	4.0	U
	Audio In	Moblie Phone	Audio Out	1.2	U
	Audio Out	Speaker	Audio In	1.4	U
	Alarm	Alarm Jig	Alarm	3.0	U

* Unshielded = U, Shielded = S

1.7 EUT Operating Mode(s)

Equipment under test was operated during the measurement under the following conditions:

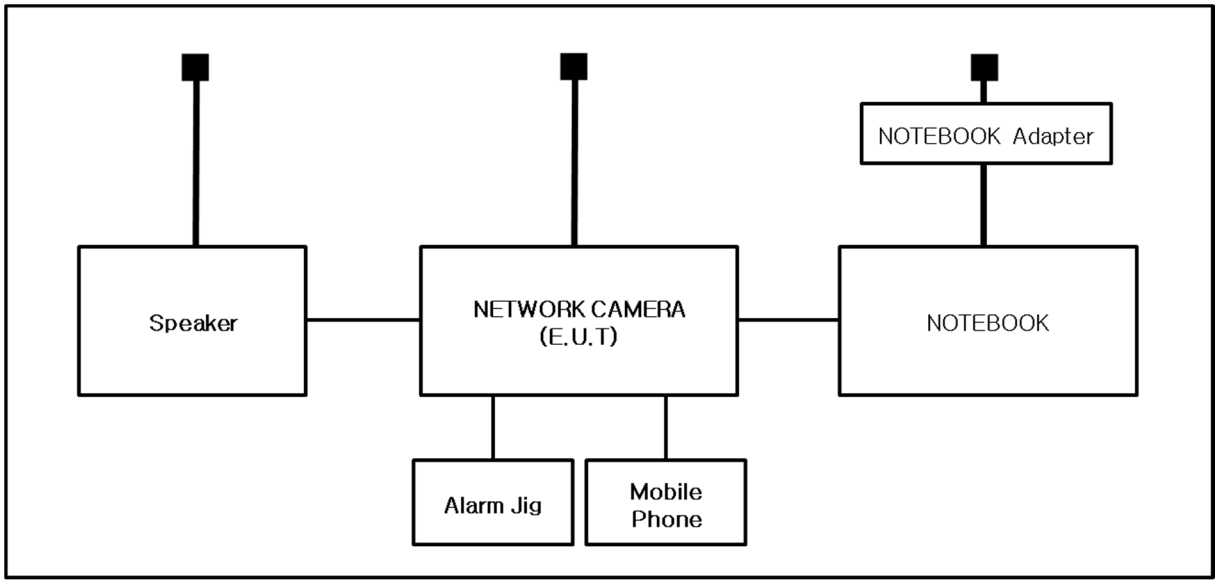
Test mode	Normal operating
OP	E.U.T Monitoring

E.U.T Test operating S/W		
Name	Version	Manufacture Company
WebViewer	5.8	Hanwha Techwin Co., Ltd.

- Input power condition during the measurements was 24 v (ac).

1.8 Configuration

■ AC Main
□ DC Main



1.9 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.10 Test Facility

The measurement facility is located at 473-21 Gayeo-ro, Yeoju-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	**FCC**	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
JAPAN	**VCCI**	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	R-4308, C-4798, T-2311, G-914
KOREA	**MSIP**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KR0100
Canada	**IC**	3 & 10 meter Open Area Test Sites and one conducted site	4769B-1
Europe	**CE**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	**KOLAS**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KOREA LABORATORY ACCREDITATION SCHEME KOLAS TESTING NO. 489

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010 ☐ Group 1 ☐ Class A ☐ Group 2 ☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547 :2009

☐ EN 55022:2010 ☐ Class A ☐ Class B

☐ EN 55024:2010 +A1:2015

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013

☒ **VCCI V-3 / 2015.04** ☒ Class A ☐ Class B

☐ **AS/NZS CISPR22:2009 +A1:2010** ☐ Class A ☐ Class B

☐ **47 CFR Part 15, Subpart B**

- ☐ CISPR 22:2009 +A1:2010 ☒ Class A ☐ Class B
- ☐ ANSI C63.4-2009

☐ **IC Regulation ICES-003 : 2016**

- ☐ CAN/CSA CISPR 22-10 ☐ Class A ☐ Class B
- ☐ ANSI C63.4-2014

☐ **RE– Directive 2014/53/EU**

☐ EN 301 489-1 V1.9.2

- ☐ Equipment for fixed use
- ☐ Equipment for vehicular use
- ☐ Equipment for portable use

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002

2.1 Conducted Emissions Mains Power Ports

Test Date
Oct, 05, 2016

Test Location
Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R & S	101783	05, 03, 2017
☒	LISN	ENV216	R & S	101137	02, 04, 2017
☒	LISN	ENV216	R & S	101786	05, 02, 2017
☒	Electro wave Shieldroom	-	SEMITEC	-	-
☒	EMI Test S/W	EMC32	R & S	9.12.00	-

Test Conditions
Temperature: 21,1 ℃
Relative Humidity: 53,1 %

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.2 Conducted Emissions at Telecommunication Ports

Test Date
Oct, 05, 2016

Test Location
Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R & S	101783	05, 03, 2017
☒	LISN	ENV216	R & S	101137	02, 04, 2017
☒	LISN	ENV216	R & S	101786	05, 02, 2017
☒	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04, 01, 2017
☒	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04, 01, 2017
☐	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08, 11, 2017
☒	Electro wave Shieldroom	-	SEMITEC	-	-
☒	EMI Test S/W	EMC32	R & S	9.12.00	-

Test Conditions
Temperature: 21,1 ℃
Relative Humidity: 53,1 %

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.3 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Oct, 05, 2016

Test Location
☒ Open Area Test Site #1 ☐ Open Area Test Site #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI TEST Receiver	ESU26	R&S	100551	04, 18, 2017
☒	Trilog-Broadband ANT	VULB 9163	Schwarzbeck	9163-715	04, 14, 2018
☒	OATS	-	KES	-	-
☒	Antenna Mast	1070/1080	EMCO	-	-
☒	Turn Table	-	DAEIL EMC	-	-
☒	EMI Test S/W	N/A	N/A	N/A	N/A

Test Conditions
Temperature: 21,5 ℃
Relative Humidity: 75,0 %

Frequency Range of Measurement
30 ㎒ to 1 ㎓

Instrument Settings
IF Band Width: 120 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.4 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Oct, 06, 2016

Test Location
Semi Anachoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESU26	R&S	100552	04, 24, 2017
☒	Broadband Coaxial Preamplifier	BBV 9718	Schwarzbeck Mess - Elektronik	9718-246	10, 23, 2016
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
☒	Semi Anachoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-
☒	EMI Test S/W	e3	AUDIX	8.083b	-

Test Conditions
Temperature: 23,0 ℃
Relative Humidity: 51,3 %

Frequency Range of Measurement
1 ㎓ to 6 ㎓

Instrument Settings
IF Band Width: 1 ㎒

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

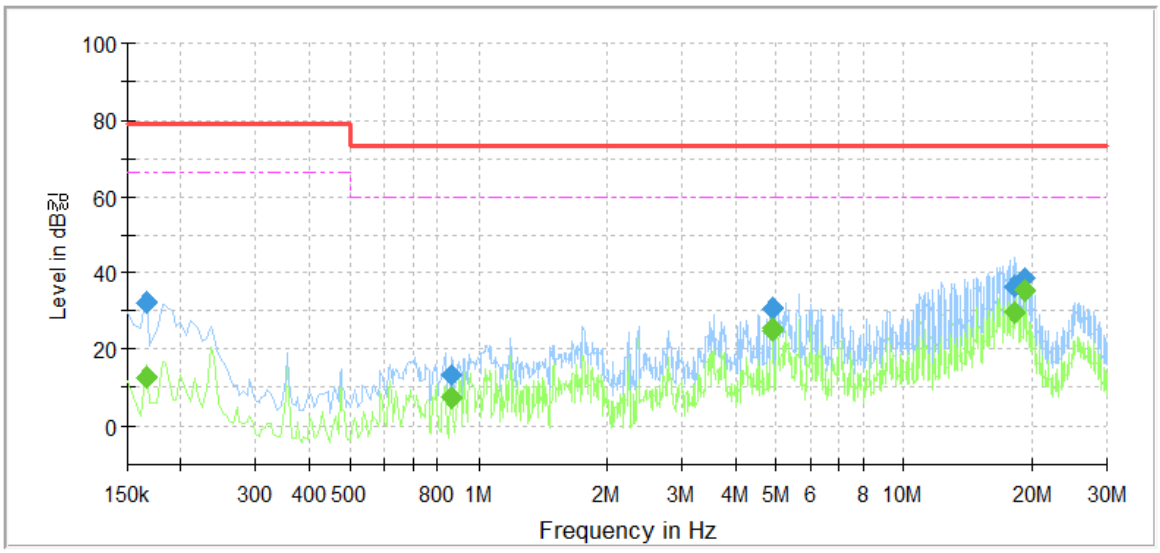
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	PNP-9200RHN
Mode	
Operator Name:	KES



Final_Result

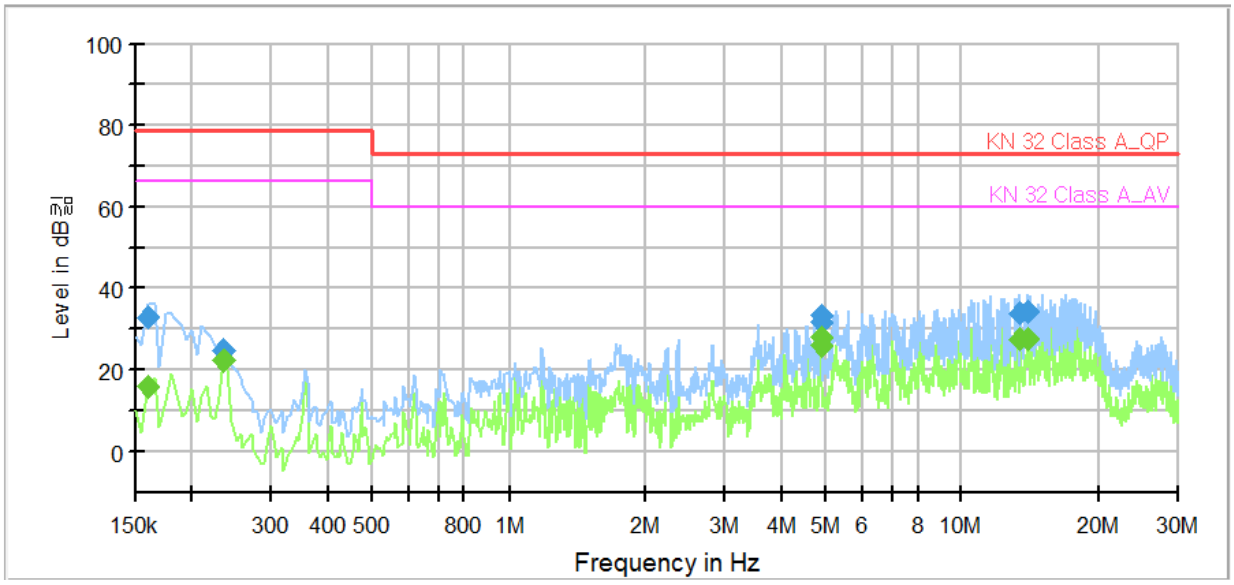
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	12.99	66.00	53.01	1000.0	9.000	L1	9.7
0.165000	32.26	---	79.00	46.74	1000.0	9.000	L1	9.7
0.865000	---	7.71	60.00	52.29	1000.0	9.000	L1	9.9
0.865000	13.47	---	73.00	59.53	1000.0	9.000	L1	9.9
4.880000	---	25.08	60.00	34.92	1000.0	9.000	L1	10.0
4.880000	30.63	---	73.00	42.37	1000.0	9.000	L1	10.0
4.890000	---	25.44	60.00	34.56	1000.0	9.000	L1	10.0
4.890000	30.89	---	73.00	42.11	1000.0	9.000	L1	10.0
18.075000	---	29.49	60.00	30.51	1000.0	9.000	L1	10.1
18.075000	36.78	---	73.00	36.22	1000.0	9.000	L1	10.1
19.200000	---	35.72	60.00	24.28	1000.0	9.000	L1	10.2
19.200000	38.74	---	73.00	34.26	1000.0	9.000	L1	10.2

♦ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR+ Cable Loss)

[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	PNP-9200RHN
Mode	
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	15.92	66.00	50.08	1000.0	9.000	N	9.7
0.160000	32.58	---	79.00	46.42	1000.0	9.000	N	9.7
0.235000	---	22.39	66.00	43.61	1000.0	9.000	N	9.7
0.235000	25.02	---	79.00	53.98	1000.0	9.000	N	9.7
4.875000	---	25.75	60.00	34.25	1000.0	9.000	N	10.0
4.875000	31.92	---	73.00	41.08	1000.0	9.000	N	10.0
4.885000	---	28.33	60.00	31.67	1000.0	9.000	N	10.0
4.885000	33.36	---	73.00	39.64	1000.0	9.000	N	10.0
13.350000	---	27.39	60.00	32.61	1000.0	9.000	N	9.9
13.350000	33.91	---	73.00	39.09	1000.0	9.000	N	9.9
14.030000	---	27.48	60.00	32.52	1000.0	9.000	N	9.9
14.030000	34.16	---	73.00	38.84	1000.0	9.000	N	9.9

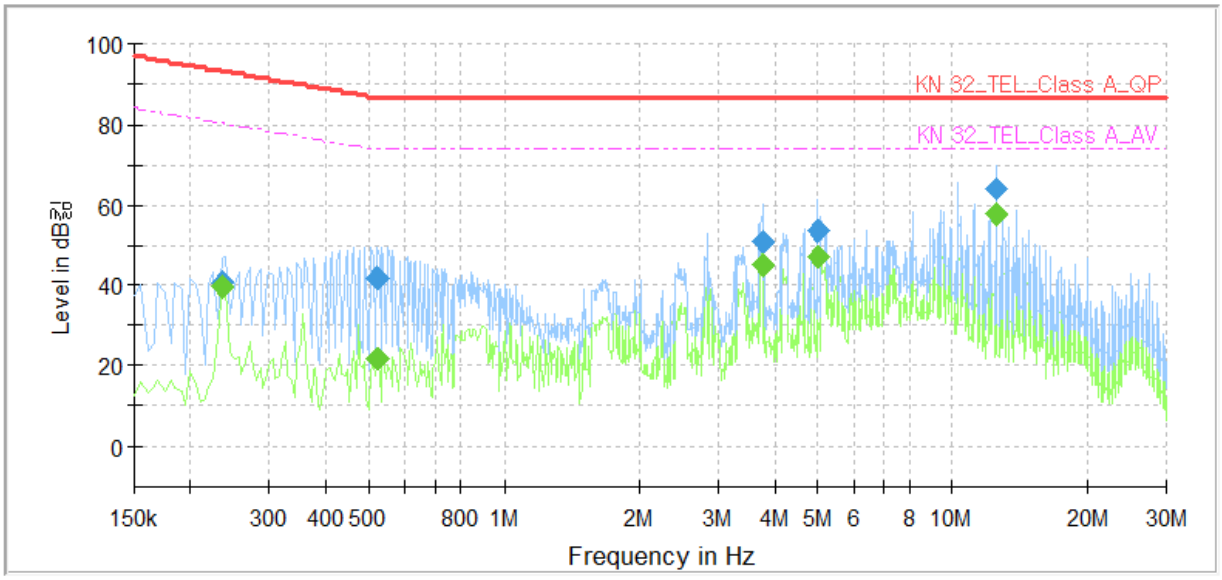
♦ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR+ Cable Loss)

Conducted Emissions at Telecommunication Ports

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	PNP-9200RHN
Mode	10 Mbps
Operator Name:	KES



Final_Result

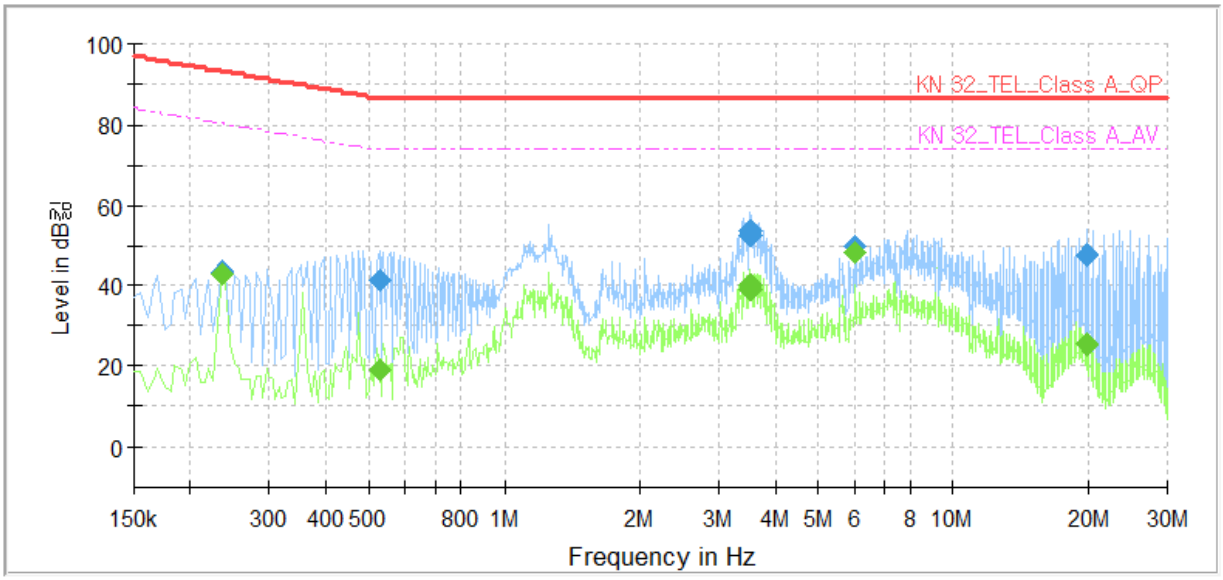
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.235000	---	39.61	80.27	40.66	1000.0	9.000	Single Line	10.1
0.235000	40.63	---	93.27	52.64	1000.0	9.000	Single Line	10.1
0.520000	---	21.55	74.00	52.45	1000.0	9.000	Single Line	10.1
0.520000	41.78	---	87.00	45.22	1000.0	9.000	Single Line	10.1
3.745000	---	44.75	74.00	29.25	1000.0	9.000	Single Line	10.1
3.745000	50.56	---	87.00	36.44	1000.0	9.000	Single Line	10.1
5.000000	---	47.22	74.00	26.78	1000.0	9.000	Single Line	10.1
5.000000	53.22	---	87.00	33.78	1000.0	9.000	Single Line	10.1
12.500000	---	57.58	74.00	16.42	1000.0	9.000	Single Line	10.0
12.500000	63.88	---	87.00	23.12	1000.0	9.000	Single Line	10.0

♦ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (ISN FACTOR+ Cable Loss)

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	PNP-9200RHN
Mode	100 Mbps
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.235000	---	42.99	80.27	37.28	1000.0	9.000	Single Line	9.6
0.235000	43.47	---	93.27	49.80	1000.0	9.000	Single Line	9.6
0.525000	---	19.13	74.00	54.87	1000.0	9.000	Single Line	9.6
0.525000	41.04	---	87.00	45.96	1000.0	9.000	Single Line	9.6
3.525000	---	40.24	74.00	33.76	1000.0	9.000	Single Line	9.6
3.525000	53.40	---	87.00	33.60	1000.0	9.000	Single Line	9.6
3.540000	---	39.00	74.00	35.00	1000.0	9.000	Single Line	9.6
3.540000	52.20	---	87.00	34.80	1000.0	9.000	Single Line	9.6
6.040000	---	48.21	74.00	25.79	1000.0	9.000	Single Line	9.6
6.040000	49.66	---	87.00	37.34	1000.0	9.000	Single Line	9.6
19.785000	---	25.61	74.00	48.39	1000.0	9.000	Single Line	9.5
19.785000	47.71	---	87.00	39.29	1000.0	9.000	Single Line	9.5

♦ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (ISN FACTOR+ Cable Loss)

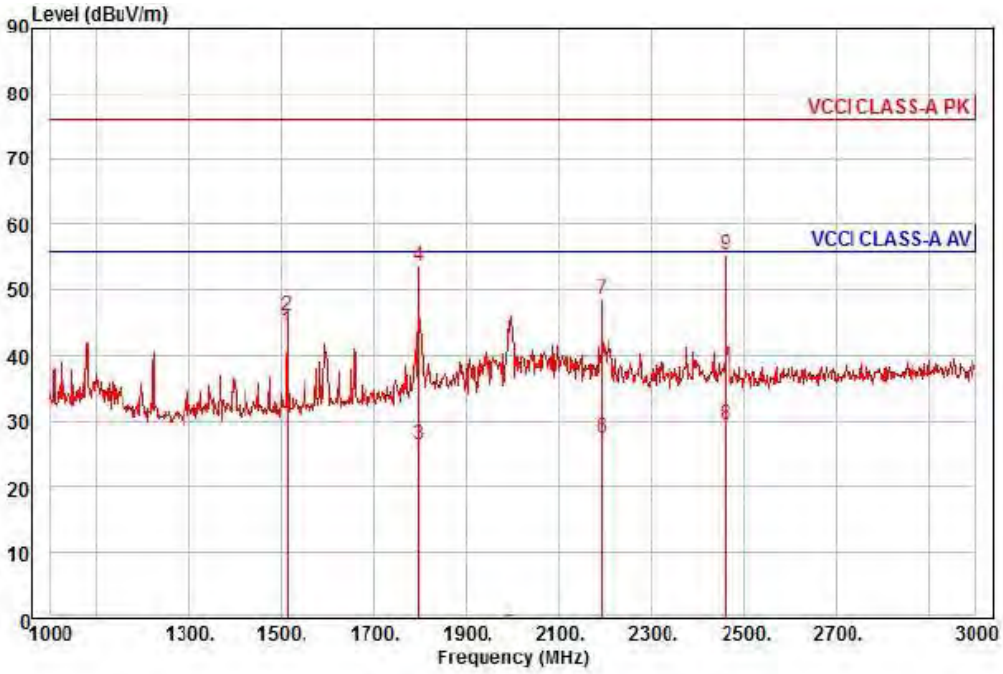
Radiated Electric Field Emissions(Below 1 ㎓)

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin [dB]
[㎒]	[dBμV]		[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	
144.09	16.52	H	3.90	8.04	2.46	27.02	40.00	12.98
155.11	14.16	V	1.10	8.35	2.58	25.09	40.00	14.91
216.10	14.07	H	4.00	11.82	3.04	28.93	40.00	11.07
504.23	16.56	H	3.20	17.38	5.07	39.01	47.00	7.99
648.79	9.71	V	1.00	19.48	5.99	35.18	47.00	11.82
792.00	16.21	H	1.20	20.81	6.91	43.93	47.00	3.07

* H : Horizontal, V : Vertical

♦ Calculation
Corrected Amplitude [㏈uV] = Amplitude[㏈uV] + Correction Factor [㏈]
Corrected Amplitude : The Final Value, Amplitude : Reading Value,
Correction Factor : ANT FACTOR + Cable loss

Radiated Electric Field Emissions(Above 1 ㎓)



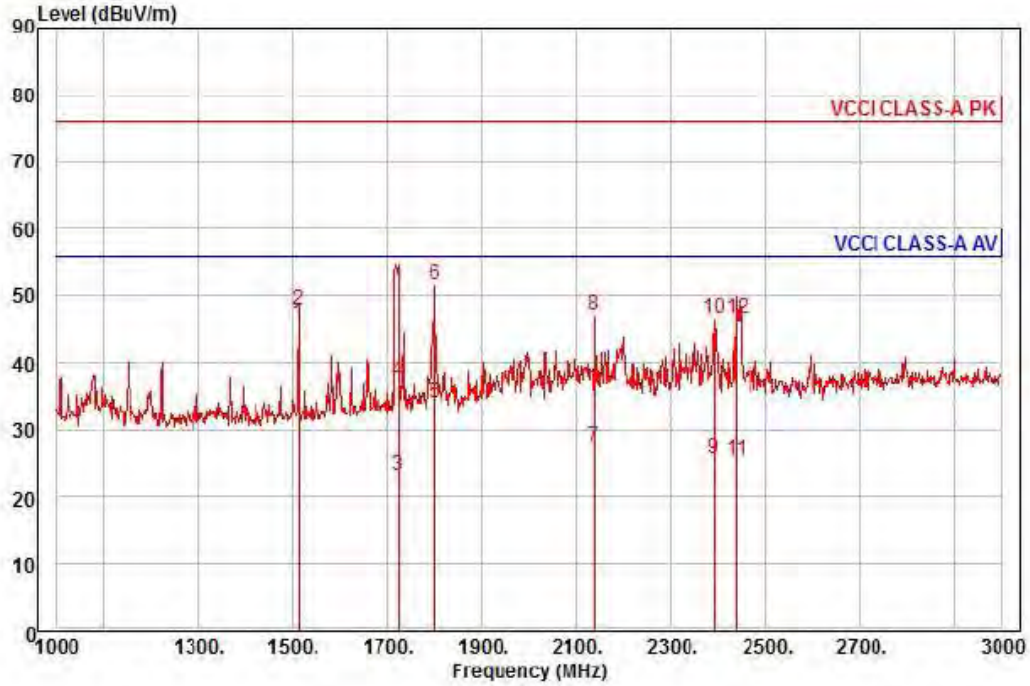
Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : PNP-9200RHN
Mode :
Memo : 1 ~ 3 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1512.00	49.70	25.94	8.05	39.87	137	56.00	-12.18	horizontal	Average
2	1512.00	51.96	25.94	8.05	39.87	137	76.00	-29.92	horizontal	Peak
3	1796.00	30.24	27.07	8.82	39.73	50	56.00	-29.60	horizontal	Average
4	1796.00	57.44	27.07	8.82	39.73	50	76.00	-22.40	horizontal	Peak
5	1996.00	0.00	27.86	9.33	39.63	203	76.00	-78.44	horizontal	Peak
6	2192.00	29.18	28.35	9.78	39.74	41	56.00	-28.43	horizontal	Average
7	2192.00	50.18	28.35	9.78	39.74	41	76.00	-27.43	horizontal	Peak
8	2460.00	29.79	29.01	10.45	39.90	335	56.00	-26.65	horizontal	Average
9 pk	2460.00	55.75	29.01	10.45	39.90	335	76.00	-20.69	horizontal	Peak

♦ Calculation

Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] – Preamp Factor [㏈]) – Limit Line[㏈uV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor



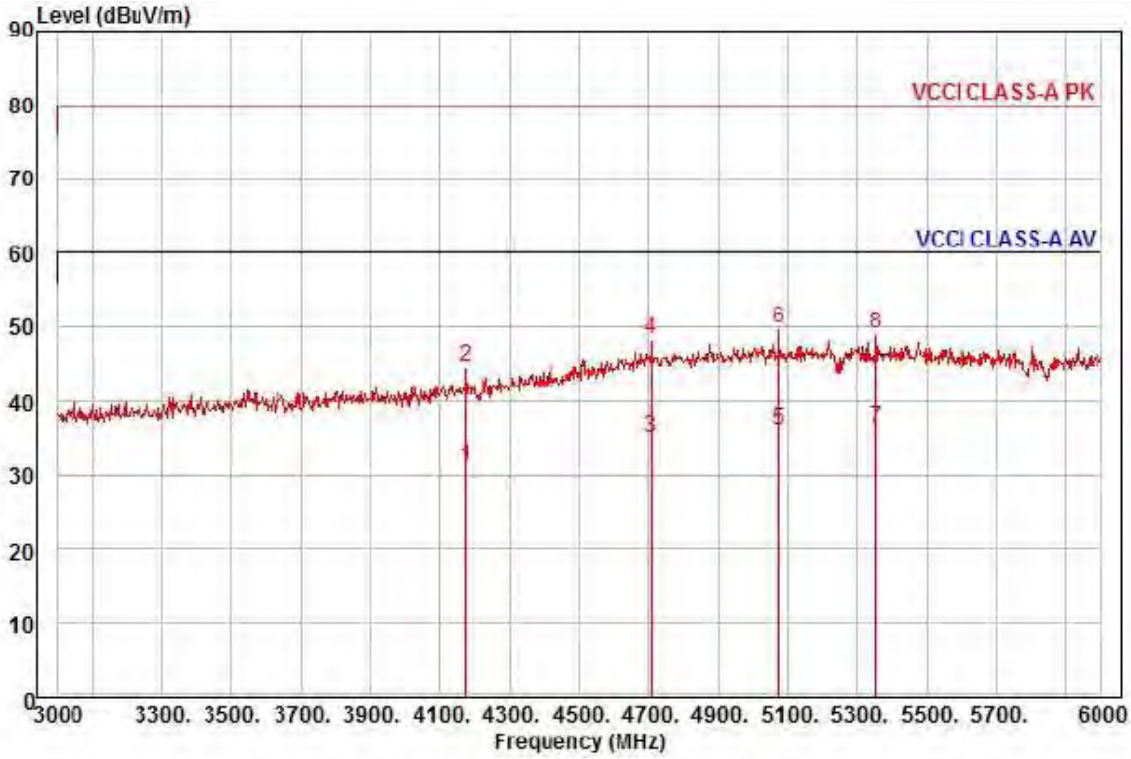
Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : PNP-9200RHN
Mode :
Memo : 1 ~ 3 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1512.00	51.65	25.94	8.05	39.87	87	56.00	-10.23	vertical	Average
2	1512.00	53.65	25.94	8.05	39.87	87	76.00	-28.23	vertical	Peak
3	1724.00	27.68	26.78	8.63	39.77	190	56.00	-32.68	vertical	Average
4	1724.00	41.71	26.78	8.63	39.77	190	76.00	-38.65	vertical	Peak
5	1800.00	37.88	27.09	8.83	39.73	215	56.00	-21.93	vertical	Average
6 pk	1800.00	55.54	27.09	8.83	39.73	215	76.00	-24.27	vertical	Peak
7	2138.00	29.19	28.22	9.66	39.71	149	56.00	-28.64	vertical	Average
8	2138.00	48.79	28.22	9.66	39.71	149	76.00	-29.04	vertical	Peak
9	2392.00	26.45	28.84	10.30	39.86	172	56.00	-30.27	vertical	Average
10	2392.00	47.31	28.84	10.30	39.86	172	76.00	-29.41	vertical	Peak
11	2440.00	25.93	28.96	10.41	39.89	143	56.00	-30.59	vertical	Average
12	2440.00	46.99	28.96	10.41	39.89	143	76.00	-29.53	vertical	Peak

♦ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] – Preamp Factor [dB]) – Limit Line[dBuV]

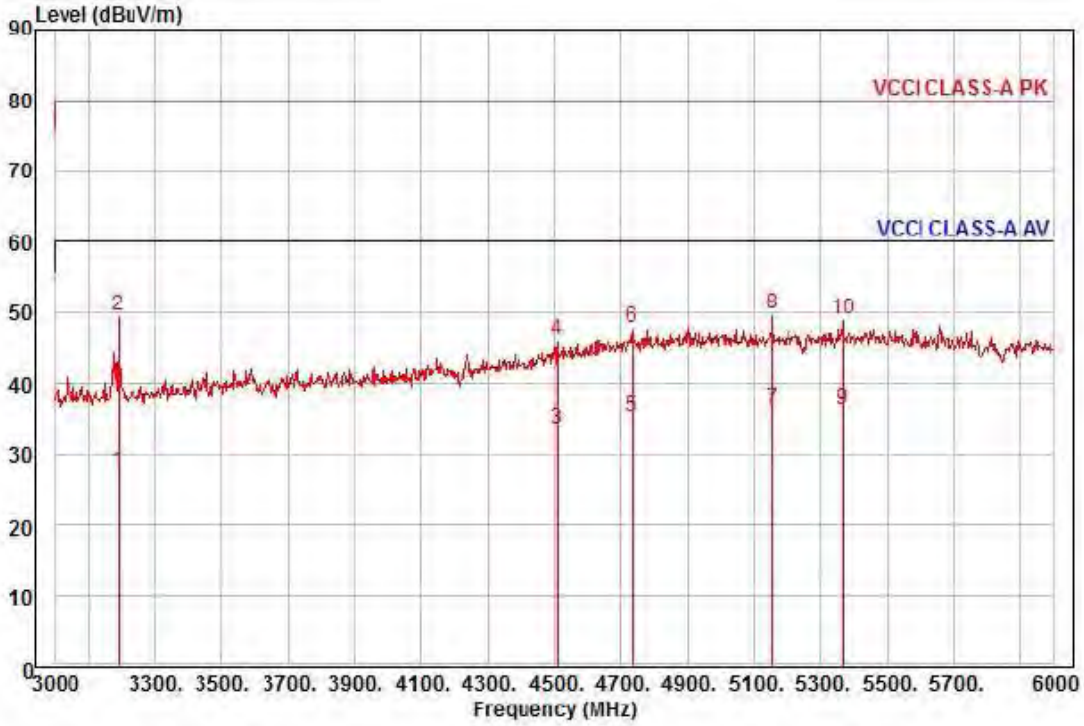
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor



Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : PNP-9200RHN
Mode :
Memo : 3 ~ 6 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	4173.00	24.76	33.00	13.89	40.41	124	60.00	-28.76	horizontal	Average
2	4173.00	38.04	33.00	13.89	40.41	124	80.00	-35.48	horizontal	Peak
3	4707.00	24.55	36.05	14.89	40.41	322	60.00	-24.92	horizontal	Average
4	4707.00	37.66	36.05	14.89	40.41	322	80.00	-31.81	horizontal	Peak
5	5076.00	23.44	37.57	15.47	40.40	36	60.00	-23.92	horizontal	Average
6 pk	5076.00	37.15	37.57	15.47	40.40	36	80.00	-30.21	horizontal	Peak
7 pp	5352.00	23.58	37.01	15.96	40.36	348	60.00	-23.81	horizontal	Average
8	5352.00	36.46	37.01	15.96	40.36	348	80.00	-30.93	horizontal	Peak

♦ Calculation
Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] – Preamp Factor [dB]) – Limit Line[dBuV]
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor



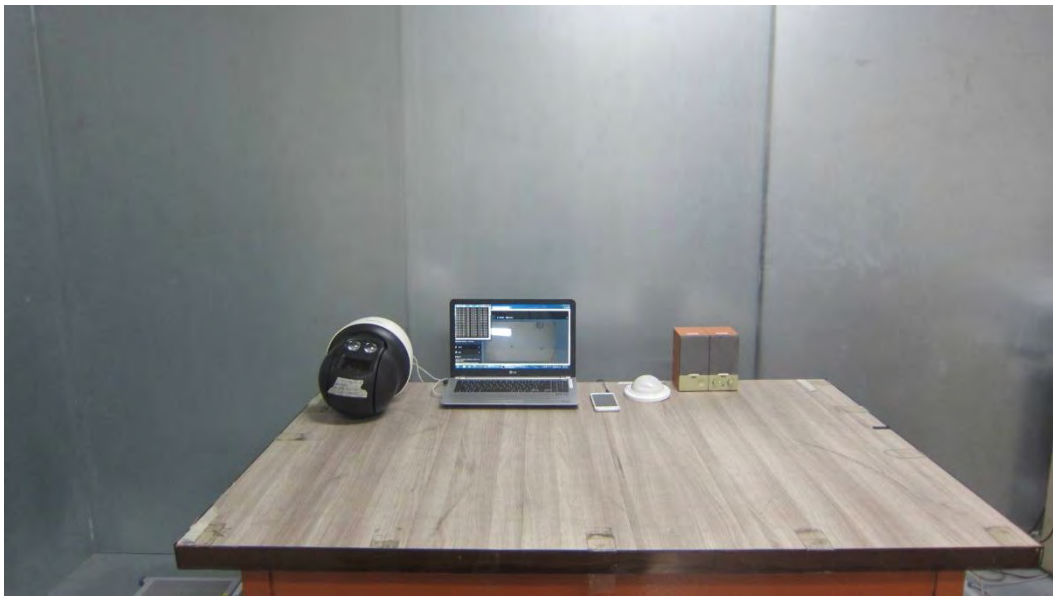
Site : chamber
Condition: VCCI CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project : NETWORK CAMERA
Model : PNP-9200RHN
Mode :
Memo : 3 ~ 6 GHz

		Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1		3189.00	25.06	30.65	12.04	40.25	203	60.00	-32.50	vertical	Average
2		3189.00	47.20	30.65	12.04	40.25	203	80.00	-30.36	vertical	Peak
3		4509.00	24.73	34.92	14.48	40.41	102	60.00	-26.28	vertical	Average
4		4509.00	37.22	34.92	14.48	40.41	102	80.00	-33.79	vertical	Peak
5		4734.00	24.49	36.20	14.95	40.41	344	60.00	-24.77	vertical	Average
6		4734.00	36.99	36.20	14.95	40.41	344	80.00	-32.27	vertical	Peak
7	pp	5154.00	23.68	37.41	15.62	40.39	119	60.00	-23.68	vertical	Average
8	pk	5154.00	37.17	37.41	15.62	40.39	119	80.00	-30.19	vertical	Peak
9		5364.00	23.63	36.98	15.98	40.36	96	60.00	-23.77	vertical	Average
10		5364.00	36.50	36.98	15.98	40.36	96	80.00	-30.90	vertical	Peak

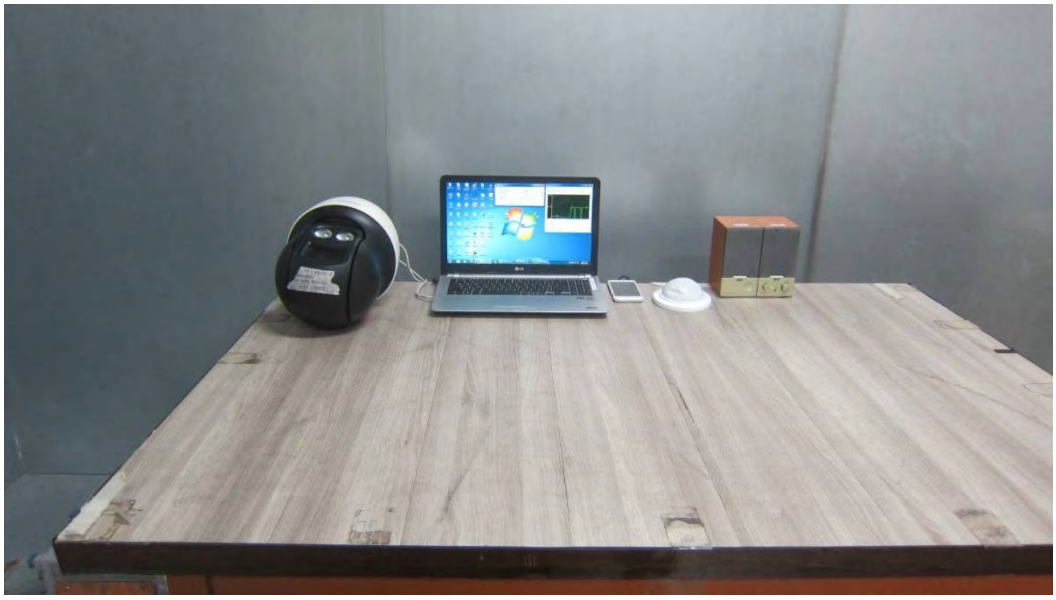
♦ Calculation
Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] – Preamp Factor [㏈]) – Limit Line[㏈uV]
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

Test Setup Photos and Configuration

Conducted Voltage Emissions

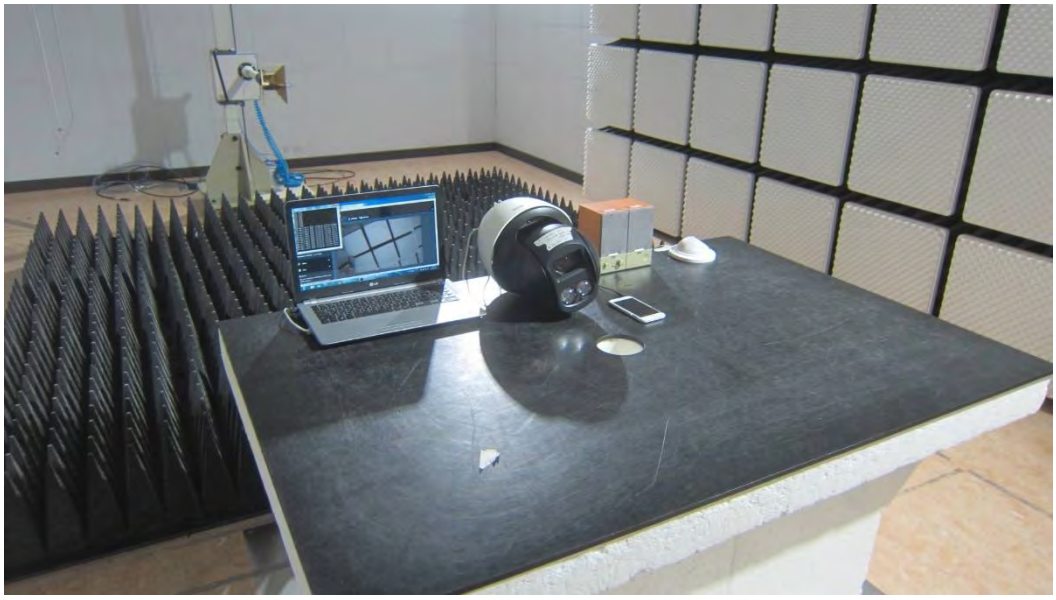


Conducted Telecommunication Emissions



Radiated Electric Field Emissions(Below 1 ㎓)

Radiated Electric Field Emissions(Above 1 ㎓)



EUT External Photographs

(Top)

(Bottom)

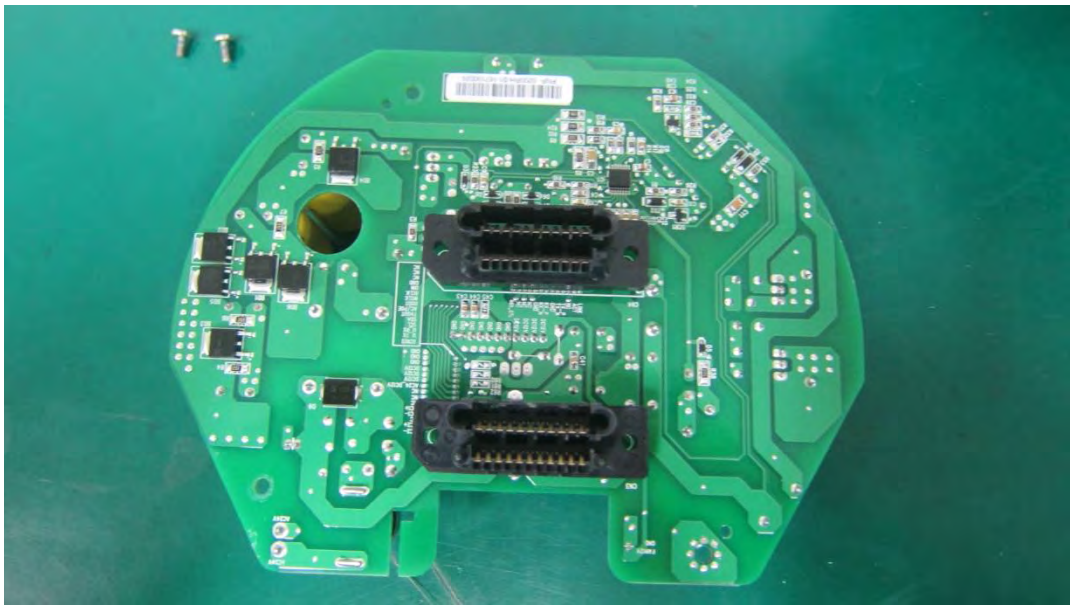
EUT Internal Photographs

(Internal View)

EUT Internal View – Main Board

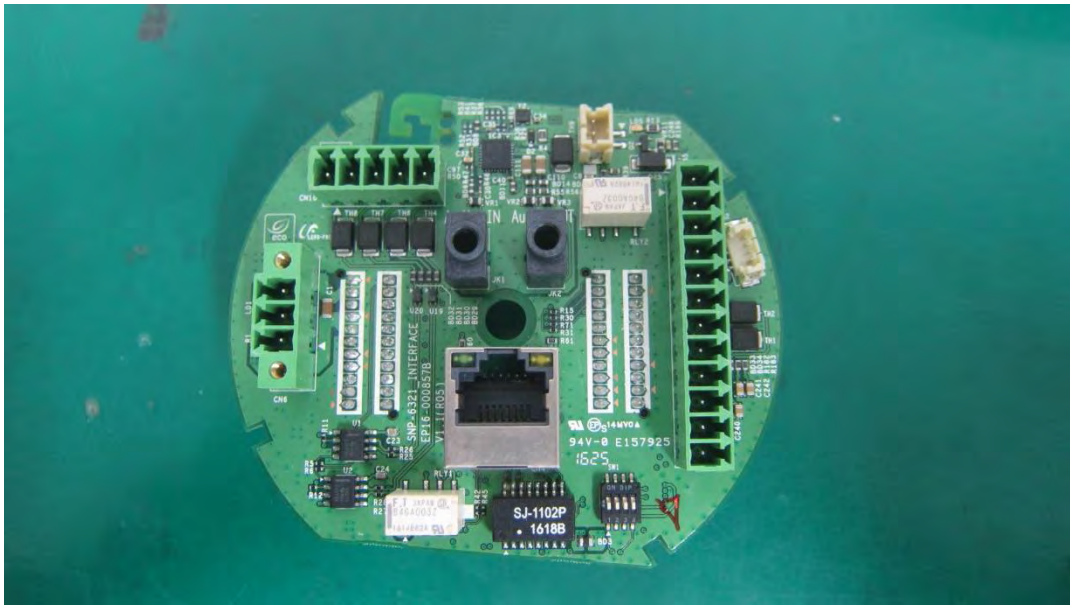
(Top)

(Bottom)



EUT Internal View – Sub Board 1

(Top)



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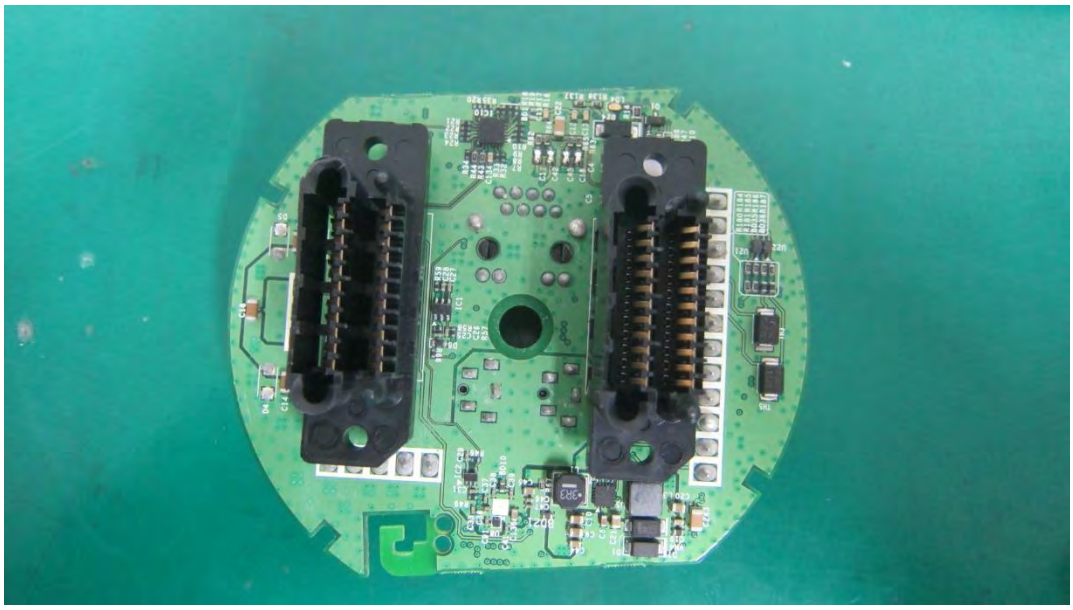


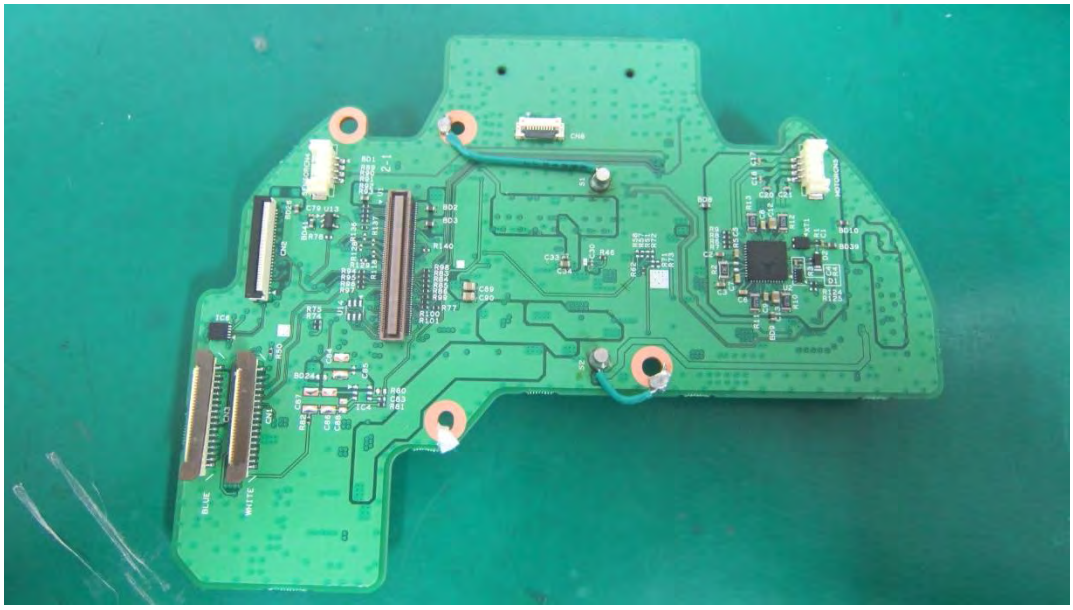
EUT Internal View – Sub Board 2

(Top)

(Bottom)

EUT Internal View – Sub Board 3

(Top)



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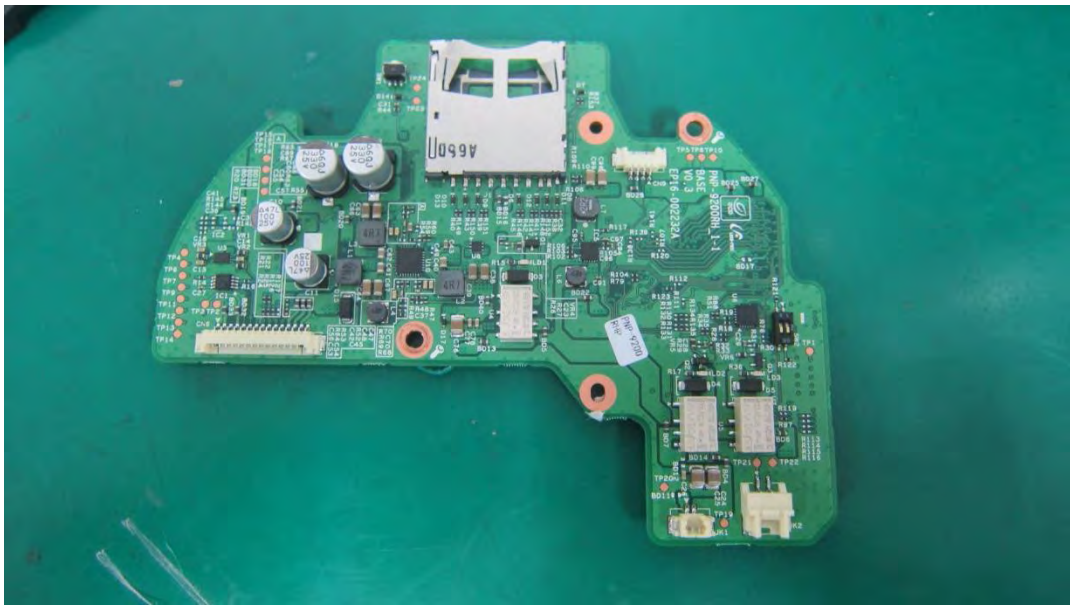
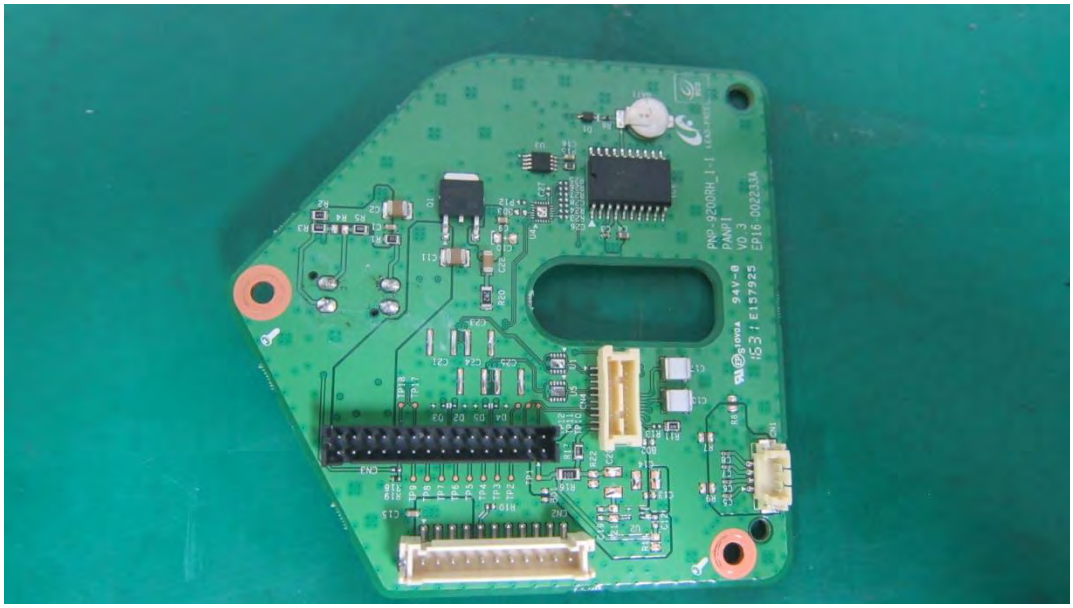
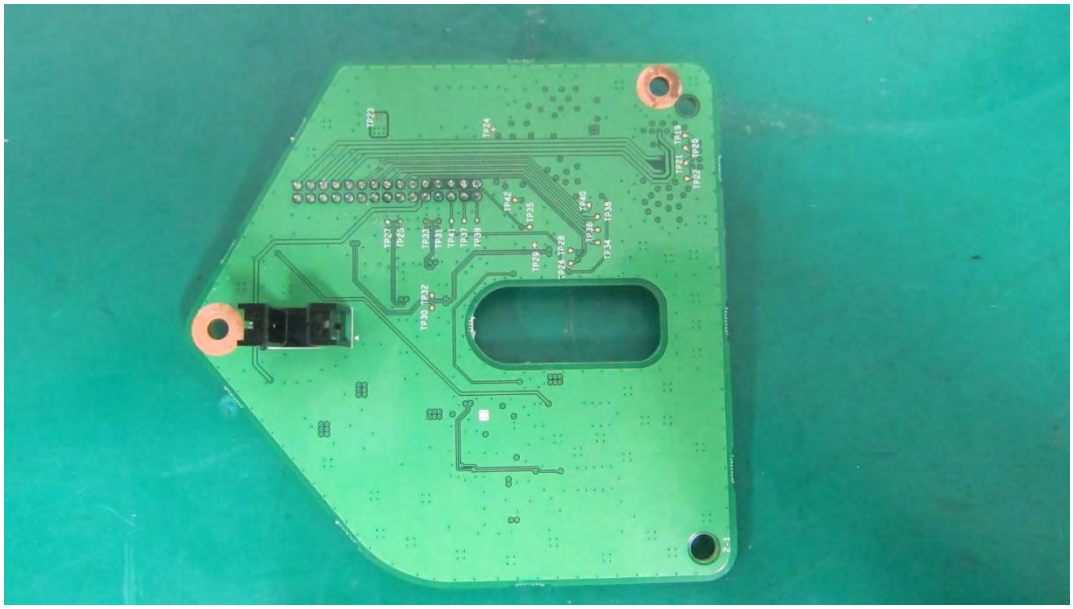


EUT Internal View – Sub Board 4

(Top)

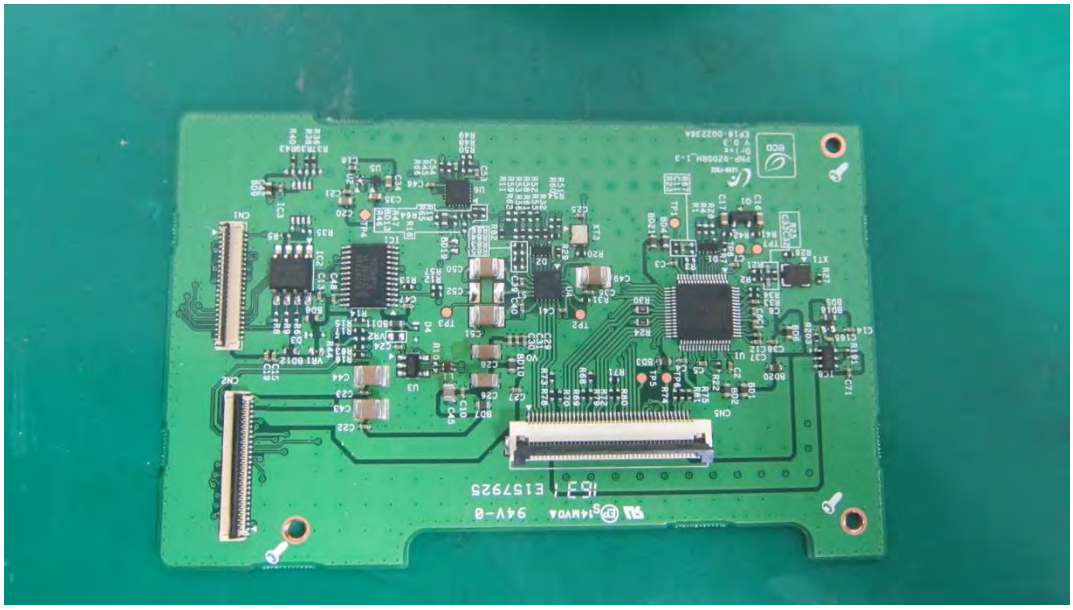


(Bottom)



EUT Internal View – Sub Board 5

(Top)



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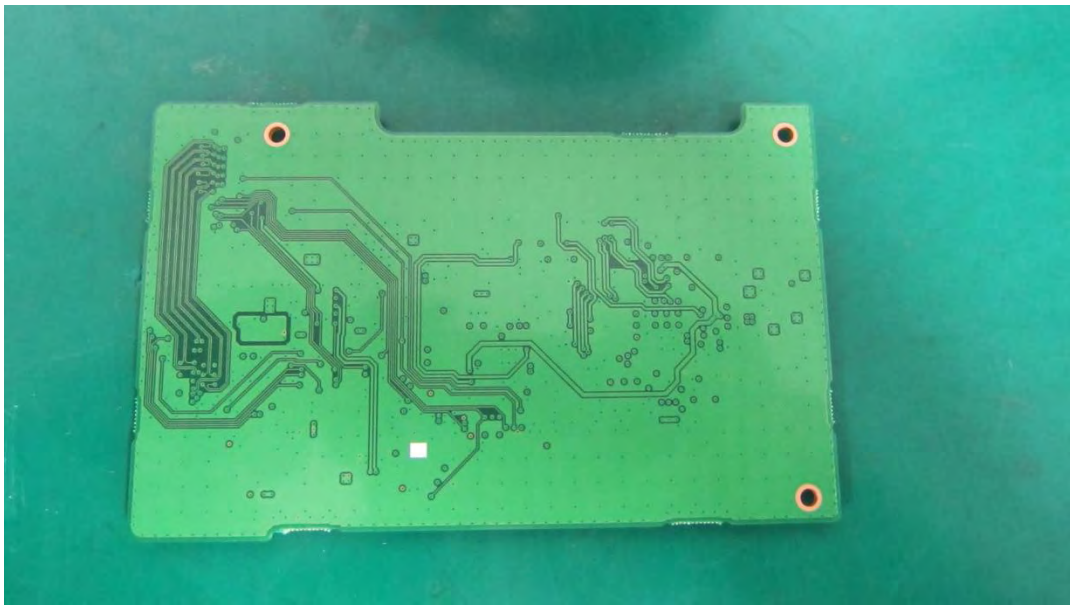
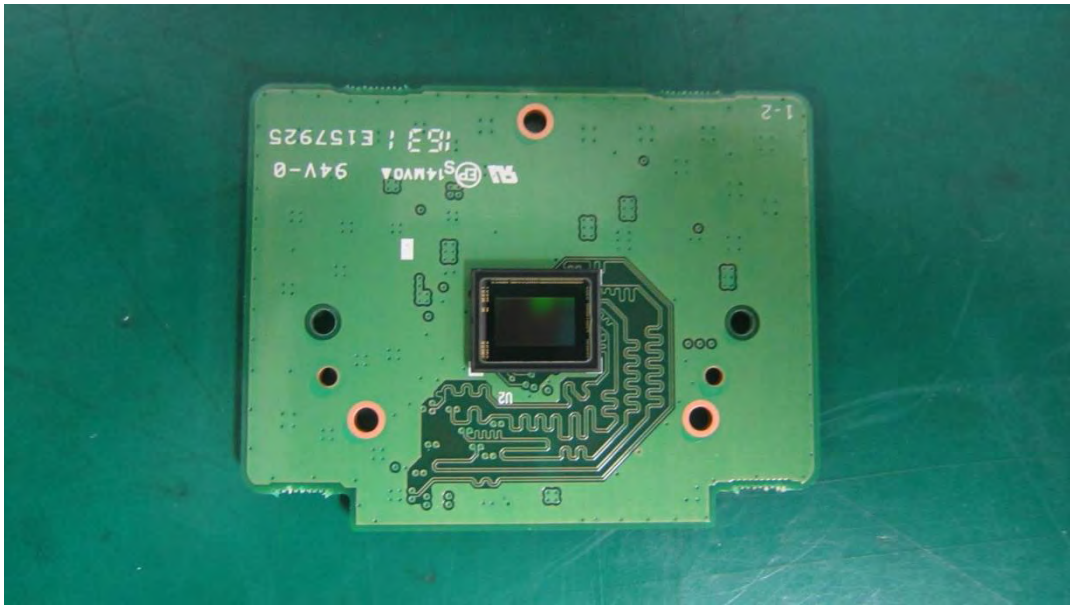


EUT Internal View – Sub Board 6

(Top)



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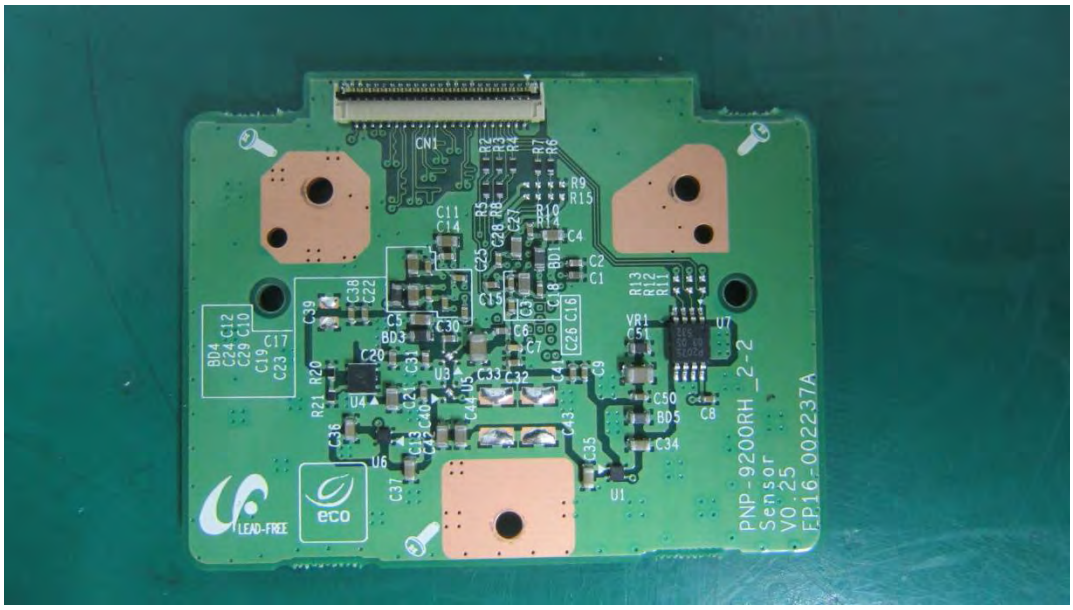
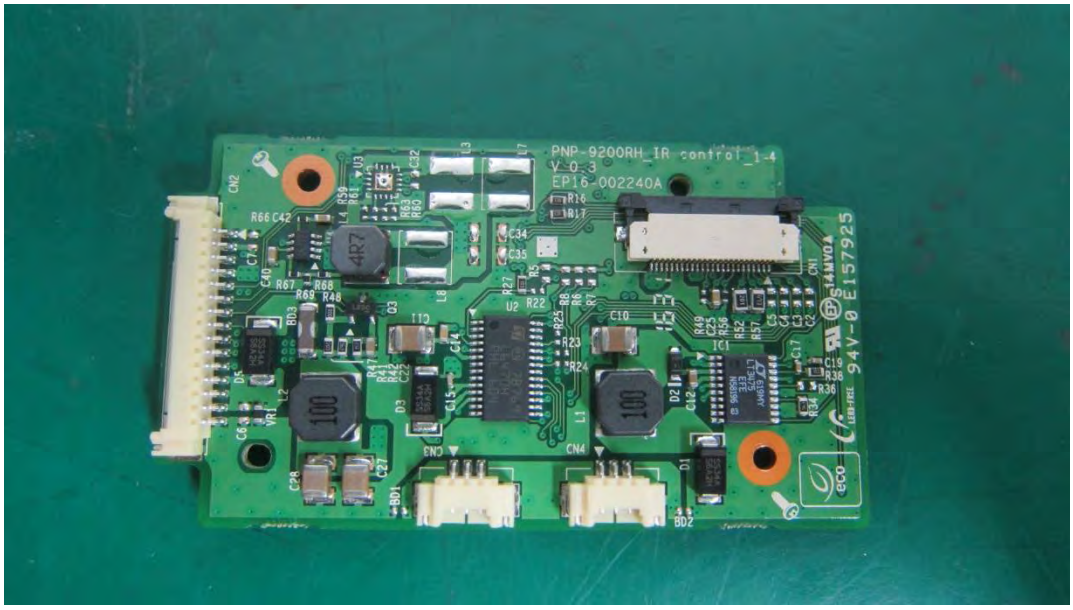


EUT Internal View – Sub Board 7

(Top)



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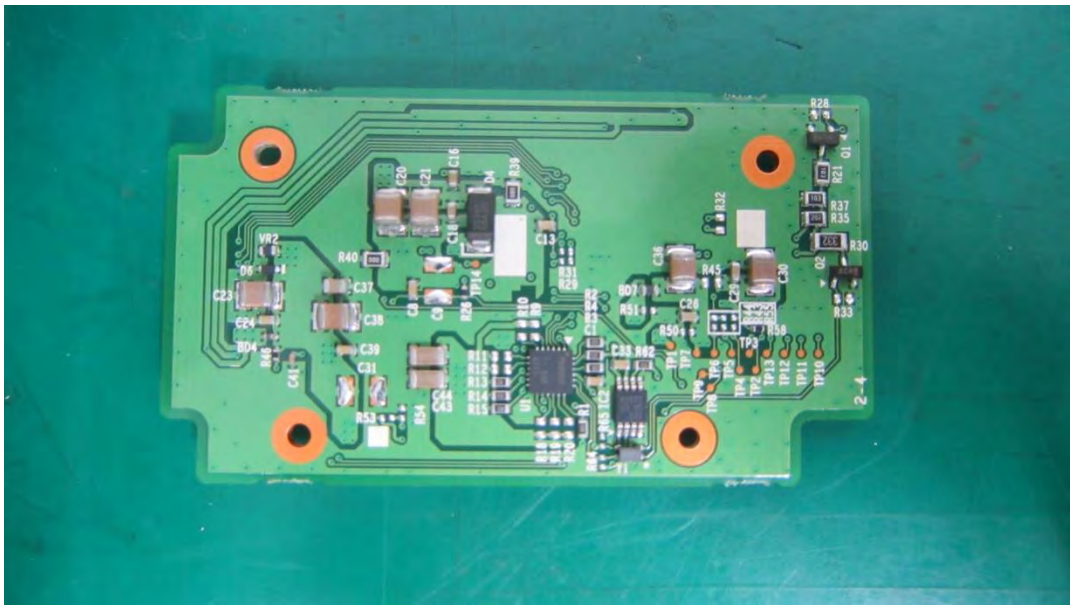
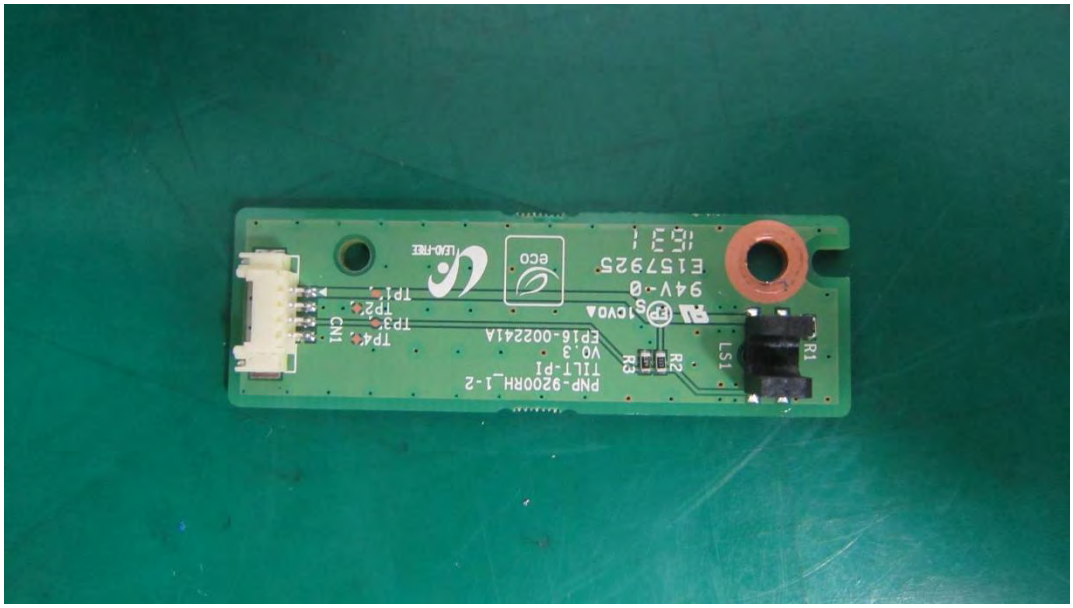


EUT Internal View – Sub Board 8

(Top)



(Bottom)